



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,647	08/01/2005	Johan Andersson	026220-00064	7625
4372 7590 07/17/2007 ARENT FOX PLLC 1050 CONNECTICUT AVENUE, N.W. SUITE 400 WASHINGTON, DC 20036			EXAMINER KOSACK, JOSEPH R	
			ART UNIT 1626	PAPER NUMBER
			MAIL DATE 07/17/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/527,647	Applicant(s) ANDERSSON ET AL.	
	Examiner Joseph Kosack	Art Unit 1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,7-22,24,32,34,35 and 39-45 is/are pending in the application.
- 4a) Of the above claim(s) 32,34 and 35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,7-22,24 and 39-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1, 7-22, 24, 32, 34-35, and 39-45 are pending in the instant application.

Amendments

The amendment filed May 01, 2007 has been acknowledged and has been entered into the application file.

Previous Specification Objections

The disclosure was previously objected to because of the following informalities: no brief description or detailed description of the drawing is in the specification. Applicant has pointed to the section of the specification with the brief description of the drawings and the objection is withdrawn. It is noted that the Brief Description of the Drawings normally appears earlier in the specification.

Previous Claim Objections

Claims 1, 6-22, 24 and 39-48 were previously objected to for containing elected and non-elected subject matter. Applicant has cancelled the non-elected subject matter and the objection is withdrawn.

Claim 9 objected to because of the following informalities: missing a comma between perchloric acid and polystyrene sulphonic acids. Applicant has corrected the error and the objection is withdrawn.

Previous Claim Rejections - 35 USC § 112

Claims 40-41 were previously rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Applicant has pointed out the exact sections of support and the rejection is withdrawn.

Previous Claim Rejections - 35 USC § 103

Claims 1, 6-22, 24 and 39-48 were previously rejected under 35 U.S.C. 103(a) as being unpatentable over Del Soldato et al. (WO 95/30641 A1) in view of Lai et al. (USPN 6,355,666), Cainelli et al. (*J. Chem. Soc. Perkin Trans.*, 1987, 2637-2642) and Hwu et al. (*Synthesis*, 1994, 471-474).

Applicant has traversed the rejection on the grounds that the prior art does not teach the instant reaction temperature of not more than 90° C.

This is not found to be persuasive because varying the reaction temperature is just a matter of routine optimization. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) Applicant does not contest that the other conditions of the reaction have been cited in the *prima facie* case. Varying temperatures is a common practice in the optimization of a reaction in order to generate better yields and purity. Therefore, the rejections shall be maintained on claims 1, 7-22, 24, and 39-45. The rejections are withdrawn for claims 46-48 as those claims have been cancelled.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 7-22, 24 and 39-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Del Soldato et al. (WO 95/30641 A1) in view of Lai et al. (USPN 6,355,666), Cainelli et al. (*J. Chem. Soc. Perkin Trans.*, 1987, 2637-2642) and Hwu et al. (*Synthesis*, 1994, 471-474).

The instant application is drawn to a process for making a nitrooxy linked diclofenac. The process comprises reacting diclofenac with a diol-linker, reacting the resulting product with an alkylsulfonyl source, and reacting that product with an alkali

nitrate to yield the final product. Exact details on solvents, purification, and other parameters are provided in the claims.

Determination of the scope and content of the prior art (MPEP §2141.01)

Del Soldato et al. teach the reaction of diclofenac with a dihalolinker (either alkyl or ether linker) with further reaction with silver nitrate to yield the nitrooxy-linked diclofenac. See pages 40-51.

Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)

Del Soldato et al. do not teach the reaction of diclofenac with a glycol linker, reaction of that product with an alkylsulfonyl source, or reaction with an alkali nitrate. Also, the exact details of solvents, purification, and other parameters provided in dependent claims are not addressed.

Finding of prima facie obviousness--rational and motivation (MPEP §2142-2413)

Lai et al. teach the reaction of NSAID's, such as diclofenac and naproxen, with glycolic linkers in chloroform and toluenesulfonic acid. See columns 9-15.

Cainelli et al. teach the reaction of a hydroxyl group with mesityl chloride in triethylamine and toluene to yield a methanesulfonyl compound. Further reaction with tetrabutylammonium nitrate yields a nitrooxy compound. See page 2641, Compounds 8-11.

Hwu et al. teaches using a mixture of tetrabutylammonium nitrate and sodium nitrate for the nitration step. See page 472.

The remaining differences in solvents, acids, crystallization, and temperature are deemed to be routine experimentation. The above items are either routinely modified in the art to affect yield and crude purity of a reaction (solvent, acid, and temperature) or is a step that is routinely performed to purify a compound (crystallization.) "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the reaction scheme of Del Soldato et al. with the guidance of Lai et al., Cainelli et al., and Hwu et al. along with routine experimentation to make the claimed invention with a reasonable expectation of success. The motivation to do so is to reduce the cost of manufacturing nitrooxy-linked diclofenac which has been known for over a decade.

Thus, the claimed invention as a whole was *prima facie* obviousness over the combined teachings of the prior art.

Conclusion

Claims 1, 7-22, 24 and 39-45 are rejected.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

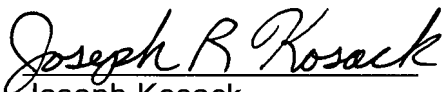
Art Unit: 1626

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Kosack whose telephone number is (571)-272-5575. The examiner can normally be reached on M-F 6:30 A.M. until 4:00 P.M. The examiner has every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571)-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Joseph Kosack
Patent Examiner
Art Unit 1626


Joseph K. McKane
Supervisory Patent Examiner
Art Unit 1626